

REMARKS

Reconsideration and Allowance are Respectfully Requested

Claims 1-60, 64 and 65 have been cancelled. Claims 61 and 62 have been amended. No claims have been added. No new matter has been added. Reconsideration of this application is respectfully requested in view of the foregoing amendment and the remarks that follow.

Applicant's invention is a never before seen and innovative combination of a classic muscle-backed and modern cavity-backed iron, delivering a unique combination of feel and forgiveness in a single iron head structure.

As is well known and already discussed in this application, muscle-backed blade type irons provide solid feel and workability but little forgiveness when the ball strikes the face outside the small sweet spot. Cavity-backed irons have reduced feel and workability but provide a larger sweet spot and greater forgiveness. There has been a movement in recent years to provide both feel and forgiveness in a single head design. In fact, the first example was this inventors iron patent, No. 5,562,551, cited by the Examiner, having a cavity only in the upper unused portion of the iron head and concentrating the mass behind the hitting area to provide both feel and forgiveness. This did increase feel as well as provide increased forgiveness, but only marginally. This design was, and still is, being used by the better low handicap golfers, offering an improvement in playability and forgiveness. Conventional wisdom in iron design states that if you want to create feel you need more mass behind the hitting area, and to simultaneously create forgiveness it is necessary to reduce the mass in the inner area by creating a perimeter weight structure on the unused outer areas of the club head.

Developed with the feedback from PGA Tour professionals, the best players in the world, as well as high handicap golfers, the present invention is 180 degrees from that logic. The present invention leaves mass where conventional wisdom says that it is not needed, behind the upper one-third blade portion of the iron head and removes mass behind the hitting area. This unorthodox and

seemingly backward approach has accomplished what no other iron design has been able to achieve ... true solid blade feel and workability but the same forgiveness and stability of a conventional perimeter weighted cavity-backed iron.

By keeping the cavity efficiently located behind the entire lower two-third portion of the iron and keeping the thickness between the cavity and the ball striking face thinner than the upper portion and the lower portion surrounding the cavity, vibration is created at impact and is captured within the cavity and transferred to the ball and the golfer's hands instead of dispersed to the outer portions of the iron head, as with irons with cavities that extend to the upper perimeter. This allows the upper, blade portion to remain feeling solid while at the same time compensating for off-center hits of the ball on the club face using the cavity structure. In terms of iron technology, this new "muscle-cavity" design is as innovative and significant to the evolution of the iron as perimeter weighting was to improving the playability of the early muscle-backed blade designs.

A golf ball when hit spends less than one-hundredth of a second on the clubface. Said a different way the ball spends less than a second on the clubface during an entire round of golf. It follows that the performance of a golf club is dependant upon very subtle forces of weight distribution. For example, the addition of two grams of weight at the toe of a driver can cause the face, moving at 100 mph, to remain open at impact, sending the golf ball away from the intended target line. Thus small changes can have big effects. The velocity of a club head being swung greatly intensifies the laws of physics.

It may seem obvious to the Examiner that this iron is just another perimeter weighted iron among many, but this reversed cavity / blade configuration with an elongated cavity in only the bottom portion of the club head and with a thickness between the bottom of the cavity and the ball striking face that is thinner than the thickness of the upper blade portion, is as different to iron design in both appearance and performance as moving the engine from the front to the rear to improve the performance of race cars.

In the outstanding Office Action, the Examiner rejected claim 68 as being indefinite, referring to the cavity upper side wall 130. The claim is actually readable on Figure 22 that shows ledges 1427 and 1428. These ledges are coincident with the bottom edge of the upper portion and the top edge of the cavity. Reading the claim on this embodiment, there is no indefiniteness under 35 USC §112 and Applicant respectfully requests that this rejection be withdrawn.

The Examiner also rejected claims 61-66, 68 and 71-72 under 35 USC §102 and 35 USC §103 over the patent to Teramoto et al. (4,645,207). The Examiner takes the position that Teramoto shows an upper portion and a lower portion extending entirely across from heel to toe. The Examiner indicates that the upper and lower portions extend approximately midway between the top ridge and bottom sole, apparently relying on Figures 4a, 4b and 4c. The Examiner makes an assumption that there is an elongated cavity in the lower portion. However, the patent is silent relating to the size or lateral displacement of the cavity on the rear of the club head. One could equally make the assumption that the cavities, as shown in the cross-sectional views, are relatively narrow as compared to the length of the club head in a heel to toe direction. There is no description or showing in any of the embodiments that the cavity is elongated, as only cross-sectional views in a single plane are provided. Furthermore, the patent teaches away from Applicant's invention since the higher lofted irons have progressively less of a hollow or cavity. The nine iron has no hollow or cavity. How can one assume the largest cavity has a configuration that is readable on Applicant's claims? The simple answer is that such an assumption is improper, given the complete lack of structure shown and disclosed in the Teramoto et al. patent.

The Examiner further discusses the volume of the hollow portion or cavity and how it decreases from the long to the short irons. However, Applicant respectfully submits this teaching is not relevant to any of Applicant's claims. Applicant's claims contain no limitations relating to the size of the cavity relative to a loft angle of a particular iron in a set. This feature is relevant to a set of irons, which is the essence of the Teramoto et al. invention, whereas Applicant's claims are to a single iron type golf club

head.

The Examiner also indicated the thickness of the ball striking face is thinner than the thickness between the non-cavity portions and the ball striking face. Applicant has amended the claims to indicate that the thickness between the cavity and ball striking face is thinner than the thickness of the non-cavity upper portion and the ball striking face. Teramoto does not disclose this feature either in the specification or in the drawings.

Applicant's claims also call for the upper and lower portion to extend entirely across the rear surface of the club head from heel to toe. Teramoto is silent as to the configuration of the rear surface since only cross sectional views are shown. Given the scope and purpose of the Teramoto invention to decrease the size of the hollow portion or cavity as the irons get shorter and have more loft, it may be just as likely the structure does not extend entirely across the rear surface. For example, the cavity may favor the heel area or the toe area to effect the flight configuration of the golf ball. The point being that one of ordinary skill in the art would not know for sure the exact configuration of Teramoto without additional disclosure.

Applicant also claims in claim 62 that the upper portion has a generally uniform thickness from heel to toe. Again Teramoto is silent as to the thickness of the club head from heel to toe, as no structure is seen which suggests this fact.

To make any assumption that the rear structure of Teramoto reads on Applicant's claims, without a teaching, can only be done by way of hindsight after reviewing Applicant's disclosure.

Briefly summarizing, Applicant claims the following features not shown in the Teramoto reference. A club head with a rear surface with at least a one-third upper portion and a two-thirds lower portion and having an elongated cavity in the lower portion extending entirely between the heel and toe. A club head with a lower cavity portion where the thickness between the cavity wall and the ball striking face is thinner than both the thickness between the upper portion rear wall and the ball striking face, and the area surrounding the lower cavity and the ball striking face. A club head, having

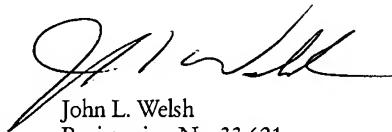
an upper portion that has generally uniform thickness from heel to toe.

The rejection under 35USC102 is improper as Teramoto does not show or teach all the claimed limitations. The rejection under 35USC103 is based upon several assumptions of the structure of Teramoto, but not the teaching of Teramoto and as such is improper. A patent can be relied upon for what it teaches and shows, not for what one believes it shows

Therefore, for the reasons outlined above, Applicant respectfully requests reconsideration of the outstanding rejections and a notice of allowance thereafter. Early notification thereof is earnestly solicited.

If it is felt that an interview would expedite prosecution of this application, please do not hesitate to contact Applicant's representative at the below number.

Respectfully submitted,



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